

21. The apparatus of claim 14, wherein the variable impedance element is adapted to tune a first resonant impedance at the low frequency and a second resonant impedance at the high frequency.

22. The apparatus of claim 14, wherein the first electrode comprises a gas distributor.

23. The apparatus of claim 14, wherein the first electrode and the substrate support are disposed to form parallel plate electrodes.

24. The apparatus of claim 14, wherein the chamber is configured as an etch chamber.

REMARKS

This is intended as a full and complete response to the Office Action dated December 5, 2002, having a shortened statutory period for response set to expire on March 5, 2003. Claims 25-33 have been cancelled without prejudice. Claims 9 and 19 have been rewritten in independent form. Claims 1, 12 and 13 have been amended to more clearly recite aspects of the invention. No new matter has been introduced by the amendments presented herein. The amendments have been made in a good faith effort to advance the prosecution on the merits. Applicants reserve the right to subsequently take up prosecution of the claims as originally filed in this application or in a continuation, a continuation-in-part and/or a divisional application. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-33 stand restricted under U.S.C. 121 as follows:

I. Claims 1-24, drawn to apparatus, classified in class 156, subclass 345.

II. Claims 25-33, drawn to process, classified in class 438, subclass 706.

A verbal provisional election was made with traverse to prosecute the invention of Group I, *i.e.*, claims 1-24 on November 27, 2002. Applicants hereby affirm the provisional election to prosecute claims 1-24 with traverse.

Claims 1 and 13 stand rejected under 35 U.S.C. 112, second paragraph. The phrase "variable impedance elements connected to the first and/or second electrode between the substrate support and an electrical ground" in claim 1 has been amended to "variable impedance elements connected to one of the first and/or second electrode, wherein each variable impedance element is disposed between the first and/or second electrode and an electrical ground" to more clearly recite the subject matter of the claim. The phrase "and a variable impedance element is connected to each electrode" in claim 13 has been amended to "wherein each electrode is connected to one of the variable impedance elements" to more clearly recite the subject matter of the claim. Therefore, withdrawal of the rejection is respectfully requested.

Claims 1, 3-8, 10-18, 20-21, and 23-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,272,417 (Ohmi) in view of US 6,413,876 (Ohmoto). Ohmi is generally directed to an RIE device configured to perform etching on a substrate surface. The device includes a plate-like electrode and a plate-like susceptor electrode placed opposite each other. A first high frequency power source provides high frequency power to the susceptor electrode at a first frequency. A second high frequency power source provides high frequency power to the plate-like electrode at a second frequency that is higher than the first frequency. The first frequency may be 10 to 50 MHz or 100 MHz, while the second frequency is 250 MHz. Further, each electrode is connected to a band eliminator so that only the first high frequency power or the second high frequency power is provided. However, Ohmi does not teach, disclose or suggest one or more variable impedance elements connected to the first and/or second electrode, wherein each variable impedance element is disposed between the first and/or second electrode and an electrical ground, as recited in claim 1, or a variable impedance element connected between the substrate support and an electrical ground, as recited in claim 14.

Ohmoto proposes a susceptor electrode connected to an RF power supply through an impedance adjuster composed of a variable capacitor and a filter coil. However, Ohmoto does not teach, disclose or suggest a high frequency power source electrically connected to either the first or second electrode; and a low frequency power source electrically connected to either the first or second electrode.

Neither Ohmi nor Ohmoto, alone or in combination, teaches or discloses all the limitations recited in claims 1 and 14. Furthermore, there is no suggestion discerned in the references of modifying the devices disclosed therein in the direction of the present invention, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claims 1 and 14 are patentable over the references of record. Claims 2-13 and 15-24 are also patentable over the references of record since they depend from claims 1 and 14, respectively.

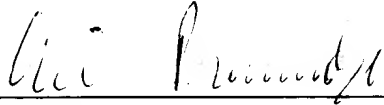
The Examiner states that claim 9 would be allowable if amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. Claim 1, from which claim 9 depends, has been amended to more clearly recite the subject matter of the claim, which overcomes the section 112 rejection, and claim 9 has been rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Accordingly, claim 9 is now in condition for allowance.

The Examiner states that claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 19 has been rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, claim 19 is now in condition for allowance.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the method or apparatus of the present invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,



Ari Pramudji

Registration No. 45,022

MOSER, PATTERSON & SHERIDAN, L.L.P.

3040 Post Oak Blvd., Suite 1500

Houston, TX 77056

Telephone: (713) 623-4844

Facsimile: (713) 623-4846

Attorney for Applicant(s)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) An apparatus for processing a substrate, comprising:
 - a chamber having a first electrode disposed therein;
 - a substrate support disposed in the chamber and providing a second electrode in the chamber;
 - a high frequency power source electrically connected to either the first or second electrode;
 - a low frequency power source electrically connected to either the first or second electrode; and
 - one or more variable impedance elements connected to the first and/or second electrode, wherein each variable impedance element is disposed between the [substrate support] first and/or second electrode and an electrical ground.

9. (Amended) [The apparatus of claim 1] An apparatus for processing a substrate, comprising:
 - a chamber having a first electrode disposed therein;
 - a substrate support disposed in the chamber and providing a second electrode in the chamber;
 - a high frequency power source electrically connected to either the first or second electrode;
 - a low frequency power source electrically connected to either the first or second electrode; and
 - one or more variable impedance elements connected to the first and/or second electrode, wherein each variable impedance element is disposed between the first and/or second electrode and an electrical ground, wherein the variable impedance elements are adapted to tune a self bias voltage division between the first and second electrodes.

12. (Amended) The apparatus of claim 11, wherein the high frequency power and the low frequency power are delivered to one electrode and at least one of the variable impedance elements is connected to the other electrode.

13. (Amended) The apparatus of claim 11, wherein the high and low frequency power are delivered to opposite electrodes, wherein each electrode is connected to one of the variable impedance elements [and a variable impedance element is connected to each electrode].

19. (Amended) [The apparatus of claim 14] An apparatus for delivering power to a process chamber having a first electrode and a substrate support forming a second electrode, comprising:

a high frequency power source electrically connected to the first electrode;

a low frequency power source electrically connected to the first electrode; and

a variable impedance element connected between the substrate support and an electrical ground, wherein the variable impedance element is adapted to tune a self bias voltage division between the first electrode and the substrate support.